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2. AMENDMENTS TO THE CLAIMS.

The following pages present the Claim listing including the text of all claims in compliance with §1.121(c) of Consolidated Patent Rules whereby only the claims 1 and 2 are amended.

CLAIMS

I claim:

1. (Currently amended) A flight control system comprising:

one [[left]] cable control system operating [[left]] one control surface and ~~one right~~ another cable control system operating ~~the right~~ another control surface each said cable control system including at least[[:]] a driving pulley and a set of control cables operatively connected to said pulley and to said control surface, whether directly or indirectly, so that the rotation of said pulley causes rotation of said control surface, each pulley independently rotatable about a common axle;

a driving system operatively connected to receive a control input and having output members coupled to said pulleys to produce an output causing said pulleys to rotate said control surfaces in the [[same]] intended direction while at the same time if one of said pulleys experiences a resistance to rotation enables continuous and uninterrupted operation of said other pulley by said control input - and furthermore - enabling said pulleys to rotate ~~said control surfaces in opposition of each other, independent~~ independently of said control input[[,]] when said pulleys receive forced feedback from unequal load between those two control surfaces;

control input means operatively connected to impart motion input to said driving system to cause said driving system to produce said output.

2. (Currently amended) A flight control system according to claim 1 wherein said driving system comprising:

an axially movable element to which control input is imparted on one end;

a two-arm bellcrank pivotally attached to the other end of said axially movable element;

two rod links each operatively connected ~~to each arm~~ between one of the arms of said bellcrank and ~~to each said pulley~~ one of said pulleys so that either the translational or a pivotal movement of said bellcrank imparts a rotational movement of said pulleys.

3. (Original) A flight control system of claim 2 in which said driving system further comprising one or more springs installed between said bellcrank and said axially movable element to resist a pivotal movement of said bellcrank relative to said axially movable element.

4. (Original) A flight control system according to claim 1 wherein each pulley includes a bevel gearing on its side face with geared faces of the two pulleys facing each other, and

a driving system comprising:

(A) at least one but preferably two planetary pinions located in the same plane between said two pulleys and opposite each other, enabled to rotate about their own axes and positioned to mesh with said bevel gearing of said pulleys, forming a differential gearing assembly;

(B) a support structure on which said planetary pinion or pinions are rotatably mounted, said support structure installed between said pulleys on said axle able to independently rotate about said axle as an assembly together with said planetary pinions when receiving said control input.

5. (Original) A flight control system of claim 4 in which said driving system further comprising at least one or more springs installed between each said planetary pinion and said support structure resisting rotation of said planetary pinion relative to said support structure.

6. (Original) A flight control system according to any of the claims 3 or 5 comprising spring preload adjustment mechanism allowing selected preload of said spring or springs to be preset.

7. (Original) A flight control system according to any of the claims 2 or 4 comprising a pulley stop at each extreme of rotational travel for each pulley, a stationary receptacle installed next to

the perimeter of each said pulley and a mechanical locking system installed onto each of said pulleys, said mechanical locking system on its said pulley being activated when both cable ends of said cable control system that attach to that pulley lose required tension due to severance of any one or both cables of that cable control system;

(A) each said mechanical locking system includes:

(1) a pin, slidably mounted to said pulley and half way between two cable ends, guided to operate in radial direction relative to said pulley when imparted by a force so that when acted upon said pin slides radially outward to extended position;

(2) a spring able to impart a force on said pin by pushing against said pin and resting against the body of said pulley;

(3) two pivotally supported linkage systems installed symmetrically about said pin in a mirror image arrangement whereby one end of each said linkage system being connected to one control cable end and resting against the pulley when said cable tension exists, and the other end of said linkage system is resting against said pin thus barring said pin, that is being pushed by said spring, from sliding out;

(B) said mechanical locking system being activated means said linkage systems on each side of said pin are released from being captive by said cables after said cables lose their tension, causing said linkage systems to release their hold on said pin allowing said spring to force said pin outward;

(C) each said stationary receptacle is a block or a plate fixed to the aircraft structure and placed next to each said pulley in the plane of rotation of said pin, contoured to follow periphery of said pulley and angularly spanning at least as much as said pin would rotate with said pulley in either direction; said stationary receptacle having one or more radial holes or notches able to capture said pin when extended with said one hole or notch, or one of said multiple holes or notches, centrally located half way between two cable ends corresponding to said pulley's neutral position;

(1) neutral position means the position of said pulley when said control surface is in neutral position having zero deflection;

(D) a pulley stop comprising a stationary block or blocks fixed to the aircraft structure and a pair of protrusions or at least one, either attached or integrally built into a pulley, in a position to shoulder against said stationary block or blocks when said pulley is in either extreme of rotational travel.

8. (Original) A flight control system according to any of claims 2 or 4 comprising two electrical locking systems, one each for each said pulley, at least one or more holes or notches within said pulley to which said locking system may engage and a pulley stop at each extreme of rotational travel for each pulley; said electrical locking system being activated when both cable ends of said cable control system that attach to that pulley lose required tension due to severance of any one or both cables of that cable control system;

said one or more holes or notches within said pulley being located on the periphery of said pulley or on its side and facing said electrical locking system with said one hole or notch, or one of said multiple holes or notches, centrally located half way between two cable ends corresponding to said pulley's neutral position;

neutral position means the position of said pulley when said control surface is in neutral position having zero deflection;

a pulley stop comprising a stationary element or elements fixed to the aircraft structure and a pair of protrusions or at least one, either attached or integrally built into a pulley, in a position to shoulder against said stationary element or elements when said pulley is in either extreme of rotational travel;

each said electrical locking system comprising:

(A) two sensors wired in series, each one operatively connected to each said cable that attach to said pulley, being able to provide an output when both said cables to which said sensors are connected lose their tension;

(B) a solenoid with solenoid operated pin having two positions: retracted and extended, depending on polarity of supplied voltage, said solenoid – fixed to the aircraft structure – installed next to said pulley, in the plane of that pulley or perpendicular to said plane, with said pin pointing toward the pulley and aligned with said hole or a notch provided in said pulley when that pulley is in neutral position so that when said pin is in extended position it engages a hole in said pulley and prevents said pulley from further rotation;

(C) a gust lock switch able to operate said solenoid to lock or unlock said pulley when the current is supplied to it;

(D) a relay having means to redirect electric current in two ways: when not energized said relay supplies the current to said gust lock switch; and when energized, by receiving an output from said sensors, said relay supplies the current to said solenoid with polarity required to extend said pin and lock said pulley in place;

(E) an electric circuit including at least said solenoid, said sensors, said gust lock switch, said relay and a source of direct current, whereby some other electronic circuitry may be added if selected sensors can not operate within the circuit of said solenoid.

9. (Original) A flight control system according to any of claims 2 or 4 wherein a mechanical gust lock, fixed to the aircraft structure and able to receive a control input, is installed next to each said pulley and located in plane of said pulley - or perpendicular to said plane - so that when activated by said control input said mechanical gust lock would engage said pulley by means of a hole or a notch provided for within said pulley and located opposite said mechanical gust lock when said pulley is in neutral position thus securing a positive locking of that flight control system; a reversal of said control input disengages said mechanical gust lock thus unlocking said flight control system;

neutral position means the position of said pulley when said control surface is in neutral position having zero deflection;

control input means operatively connected to impart motion input to said beam to cause said beam to pivot;

said mechanical gust lock comprising:

(A) a pivotally supported beam,

(B) a pin supported by a pin guide allowing axial movement of said pin,

(C) a link operatively connected to said beam and said pin so that when said beam pivots it causes said pin to slide.

10. (Original) A flight control system according to any of claims 2 or 4 comprising two electrical gust locks, one each for each said pulley, said electrical gust locks when activated by gust control switch would engage said pulley by means of a hole or a notch provided for within said pulley and located opposite said electrical gust lock when said pulley is in neutral position, thus locking said flight control system;

said electrical gust lock comprising:

(A) a solenoid with solenoid operated pin having two positions: retracted and extended, depending on polarity of supplied voltage, said solenoid – fixed to the aircraft structure – installed next to said pulley, in the plane of that pulley or perpendicular to said plane, with said pin pointing toward the pulley and aligned with a hole or a notch provided in said pulley when that pulley is in neutral position so that when said pin is in extended position it engages said pulley's hole or notch and prevents said pulley from further rotation;

(B) a gust lock switch able to operate said solenoid to lock or unlock said pulley when the current is supplied to it;

(C) an electric circuit including said solenoid, said gust lock switch and a source of direct current.